

Remarks

Reconsideration of this Application is respectfully requested.

Claims 28-83 are pending in the application, with claims 28, 46 and 66 being the independent claims. The specification has been amended to include sequence identifiers corresponding to the sequence listing filed herewith. Claims 39, 59 and 77 have been amended solely to correct typographical errors noted by the Examiner. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 112, first paragraph

Written Description

Claims 28, 33-46, 49-50, 53-66, and 71-83 were rejected under 35 U.S.C. § 112, first paragraph for allegedly lacking written description. Specifically, the Examiner alleged that the disclosure for E1 and E2 is not commensurate with the scope and lacks adequate description of the structural feature providing the recited functions. The Examiner alleged that a representative number of E1 or E2 enzymes have not been reduced to practice and that the genus of compounds encompassed by these terms is diverse and extensive. Applicants respectfully traverse this rejection.

The statutory written description requirement is essentially concerned with whether the specification (including the original claims) describes the claimed invention

in sufficient detail that the *ordinarily skilled artisan* can reasonably conclude that the inventor had possession of the claimed invention. *See M.P.E.P., 8th ed., §2163 (Rev. 2, May 2004).* Recently, in *Enzo Biochem Inc. v. Gen-Probe Inc.*, 63 USPQ2d 1609 (Fed. Cir. 2002), the Federal Circuit adopted a portion of the USPTO guidelines regarding the written description requirement. In particular, the adopted portion states that the requirement can be met by "show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics . . . i.e., *complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics.*" *Id.* at 1613 (emphasis added). Hence, adequate written description of the claims may be shown by coupling the description of the specification with the knowledge available to the skilled artisan at the time of the invention.

Federal courts have also indicated that the Patent Office has the initial burden of demonstrating that an application does not satisfy the written description requirement:

A description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. [*In re*] *Wertheim*, 541 F.2d [257] at 263, 191 USPQ [90] at 97.

M.P.E.P., 8th ed., §2163.04 (Rev. 2, May 2004). Hence, the Examiner bears the initial burden of setting forth a *prima facie* case that the claims are not adequately described.

The Examiner has not set forth a *prima facie* case that the claims are not supported by an adequate written description. First, the Examiner has not set forth who is considered a person of skill in the art. Applicants submit that a person of skill in the art would be one who has a doctorate or equivalent education and is familiar with ubiquitination, including the components required for the assay. This person would readily recognize the features of E1 and E2 enzymes and know how to use them in the claimed assays when given the guidance provided in the specification. The specification not only lists a number of different proteins that may be used, but also discloses methods for isolating additional related proteins. *See* [0031], [0033], [0034], [0059] and the Examples. The skilled artisan would be readily able to substitute additional E1 and E2 enzymes in place of those used in the working Examples. With this guidance and a basic familiarity with the art, including the art cited in the specification, a person of skill in the art would therefore be able recognize what is encompassed by a ubiquitin activating enzyme (E1) or a ubiquitin conjugating enzyme (E2).

For example, Hatfield and Vierstra (cited in the specification and provided as document AT8 in the IDS filed March 21, 2002) discloses multiple E1 proteins and teach, on page 14802, the importance of various cysteine residues for E1 enzymatic function, as well as a 50 amino acid region of high homology, thereby providing structure-function correlation. Additionally, Jensen *et al.* (cited as document AS35 in the First Supplemental IDS filed herewith) summarizes the E2 family of enzymes from several species, including yeast, *Arabidopsis*, *C. elegans*, *Drosophila*, and further characterizes human E2s. Sequence information for these enzymes can be readily found in gene databases, such as Genbank. Clearly, a person of skill in the art has many

resources available to recognize obtain additional E1 and E2 enzymes useful for the claimed invention.

Applicants note that E1 or E2 enzymes themselves are not claimed. Instead, they are components of a novel assay which is not dependent on the particular E1 or E2 enzyme used. Example 18 of the "Synopsis of Application of Written Description Guidelines" provided by the U.S.P.T.O. illustrates the requirements for such a method claim where the novelty is in the method steps. In this example, only a single embodiment is reduced to practice, but the claimed invention is adequately described because there is a limited number of ways to practice the process steps of the claimed invention and thus no substantial variation within the genus. Applicants assert that this example is similar to the instant claims. As discussed *supra*, one of skill in the art would readily identify E1 and E2 enzymes that may be used in the claimed invention since these are well known and the specification contains sufficient guidance. Because the instant specification shows a reduction to practice of more than one embodiment of the invention, and because one of skill in the art would recognize that Applicants were in possession of the various E1 and E2 enzymes necessary to practice the invention, Applicants assert that the written description requirement is fulfilled. Therefore, Applicants respectfully request that the rejection be withdrawn.

Enablement

Claims 28, 30-46, 48-66, and 68-83 were rejected under 35 U.S.C. § 112, first paragraph for allegedly not complying with the enablement requirement. Specifically, the Examiner alleged that the claims require elements that are defined in the specification

in material incorporated by reference. Applicants respectfully traverse this rejection as it may be applied to the amended specification.

The Examiner has required that the sequences for APC11, E1 (such as UBA1) and E2 (such as UBCH5b) to be explicitly set forth in a sequence listing. Applicants draw the Examiner's attention to the Sequence Listing filed herewith and to the amendments to the specification set forth *supra* to comply with this requirement. As the Genbank accession numbers were provided in the specification as filed, Applicants assert that no new matter has been introduced with the submission of this sequence listing. A facsimile copy of a Declaration signed by the first-named inventor is filed herewith in support of this assertion. Applicants respectfully request that the sequence listing be entered.

Objections

The Examiner has objected to claims 39, 59 and 77 for reciting "component" instead of "components". Applicants have amended these claims as required and respectfully request that the objection be withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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